

What Is Claimed Is:

1. A method for an exchange of data in messages between at least two users connected by a bus system, each one of the at least two users including at least one of a predefinable timing mark and an ascertainable timing mark, comprising the steps of:

causing the at least two users to transmit via the bus system messages including the data;

causing a first one of the at least two users, in a function as timer, to control the messages as a function of time such that the first one of the at least two users repeatedly transmits a first reference message including a first time information regarding a time base of the first one of the at least two users, via the bus system at a specifiable time interval; and

if the at least one of the predefinable timing mark and the ascertainable timing mark of a second one of the at least two users is reached without the first reference message of the first one of the at least two users reaching the second one of the at least two users, causing the second one of the at least two users to take over the function of timer by transmitting a second reference message with a second time information via the bus system.

2. The method according to claim 1, further comprising the steps of:

providing each one of the at least two users as timers; and

causing the first one of the at least two users and the second one of the at least two users to transmit via the bus system the first reference message with the first time information and the second reference message with the second time information when the at least one of the predefinable timing mark and the ascertainable timing mark of any of the at least two users has been reached without a receipt of a corresponding one of the first reference message and the second reference message.

3. The method according to claim 1, further comprising the steps of:

subdividing the specifiable time interval into timing windows of a specifiable length; and

transmitting the messages including the data in the timing windows.

4. The method according to claim 3, further comprising the step of:  
combining one of the first reference message and the second reference message and subsequent ones of the timing windows up to a next reference message to form a first cycle of at least one of the specifiable length and a specifiable structure, wherein:

the specifiable structure corresponds to the specifiable length, number and time position of the timing windows in the specifiable time interval following the one of the first reference message and the second reference message.

5. The method according to claim 4, further comprising the steps of:  
combining a plurality of first cycles of a same specifiable structure to form a second cycle; and

repeatedly transmitting messages in the second cycle in timing windows having a time interval greater than a time length of the first cycle.

6. The method according to claim 1, further comprising the step of:  
allocating a priority with respect to the function as timer to those of the at least two users capable of being used as a timer.

7. The method according to claim 6, wherein:

initially each one of the at least two users assumes the function as timer for a first cycle with the at least one of the predefinable timing mark and the ascertainable timing mark that is reached first without the each one of the at least two users having received a corresponding one of the first reference message and the second reference message, and

in a following one of the first cycle of a second cycle, the one of the at least two users having a highest priority takes over the function as timer.

8. The method according to claim 3, further comprising the step of:  
cyclically transmitting the messages including the data in the timing windows.

9. The method according to claim 5, further comprising the steps of:

omitting a cyclical message transfer in at least one of the timing windows of one of the first cycle and the second cycle; and

transmitting arbitrating messages in the at least one of the timing windows of one of the first cycle and the second cycle.

10. A device for an exchange of data in messages between at least two users connected by a bus system, each one of the at least two users including at least one of a predefinable timing mark and an ascertainable timing mark, comprising:

an arrangement for causing the at least two users to transmit via the bus system messages including the data;

an arrangement for causing a first one of the at least two users, in a function as timer, to control the messages as a function of time such that the first one of the at least two users repeatedly transmits a first reference message including a first time information regarding a time base of the first one of the at least two users, via the bus system at a specifiable time interval; and

an arrangement for causing, if the at least one of the predefinable timing mark and the ascertainable timing mark of a second one of the at least two users is reached without the first reference message of the first one of the at least two users reaching the second one of the at least two users, the second one of the at least two users to take over the function of timer by transmitting a second reference message with a second time information via the bus system.